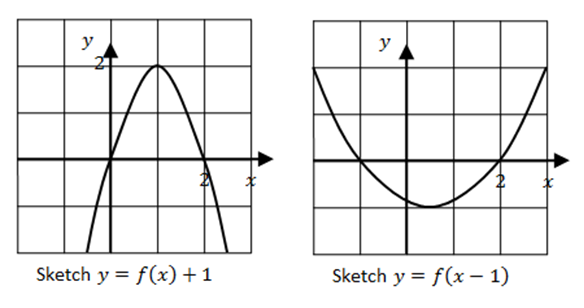
**GCSE – Graph Transformations**

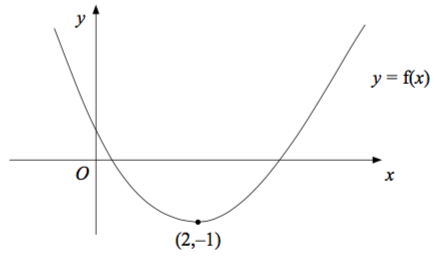
**Mini-Exercise**

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**Test Your Understanding**

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**Question 1**

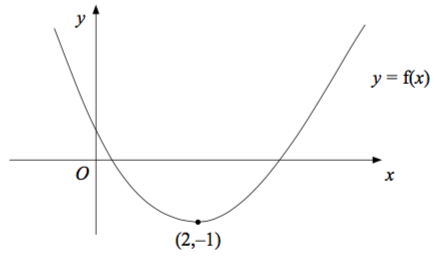


The diagram shows part of the curve with equation   
.The minimum point of the curve is at (2,–1)

Write down the coordinates of the minimum point of the curve with equation

..........................

**Question 2**

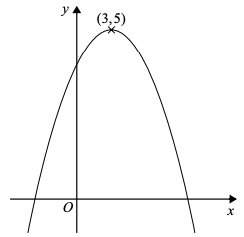


The diagram shows part of the curve with equation   
. The minimum point of the curve is at (2,–1)

Write down the coordinates of the minimum point of the curve with equation

**..........................**

**Question 3**



The diagram shows part of the curve with equation   
 The coordinates of the maximum point of the curve are .

Write down the coordinates of the maximum point of the curve with equation

**..........................**

**Question 4**

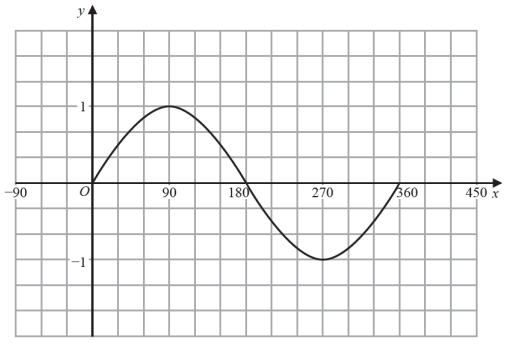
The curve with equation has a maximum point at .

Find the coordinates of the minimum point of the curve with equation

**..........................**

**Question 5**

Here is the graph of for



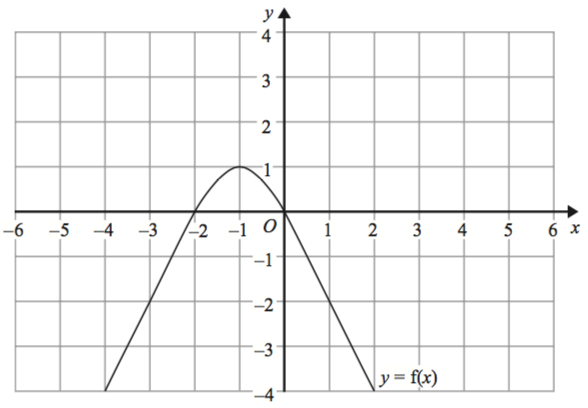
In , the graph of   
 has a maximum at the point .

Write down the coordinates of .

**..........................**

**Question 6**

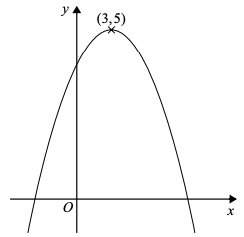
The graph of is shown on the grid.



The graph of has a turning point at the point . Write down the coordinates of the turning point of the graph of

**..........................**

**Question 7**



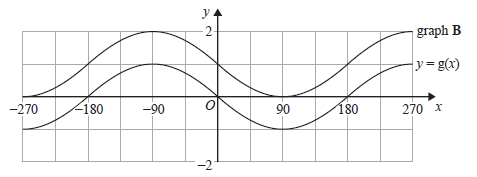
The diagram shows part of the curve with equation The coordinates of the maximum point of the curve are . The curve with equation is transformed to give the curve with equation

Describe the transformation.

**..........................**

**Question 8**

The graph of is shown on the grid.



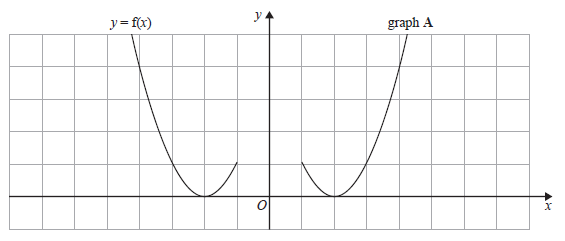
Graph is a translation of the graph of .

Write down the equation of graph .

**..........................**

**Question 9**

The graph of is shown on the grid.



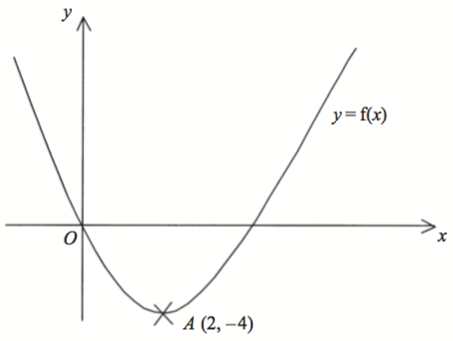
Graph is a reflection of the graph of .

Write down the equation of graph .

**..........................**

**Question 10**

This is a sketch of the curve with equation .  
It passes through the origin .



The only vertex of the curve is at .

The curve with equation has been translated to give the curve .

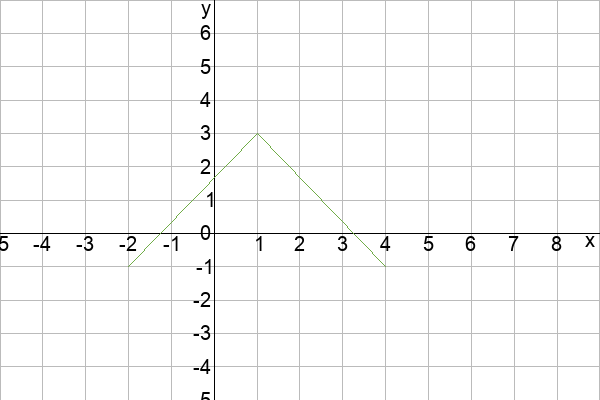
Find in terms of .

**..........................**

**Question 11**

Here is the graph of

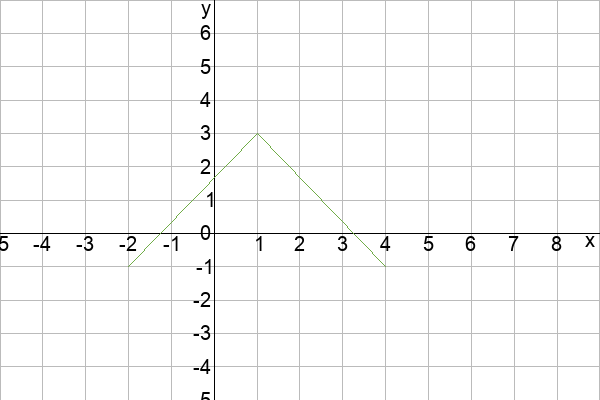
On the grid, draw the graph of



**Question 12**

Here is the graph of

On the grid, draw the graph of



**Question 13**

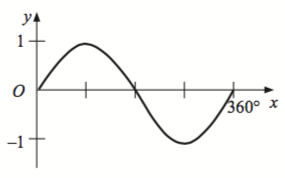
The coordinates of the turning point of the graph of is .

Hence describe the single transformation which maps the graph of onto the graph of   
.

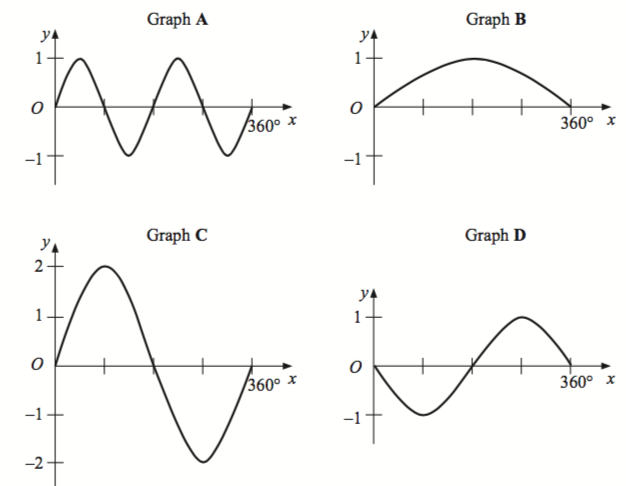
**..........................**

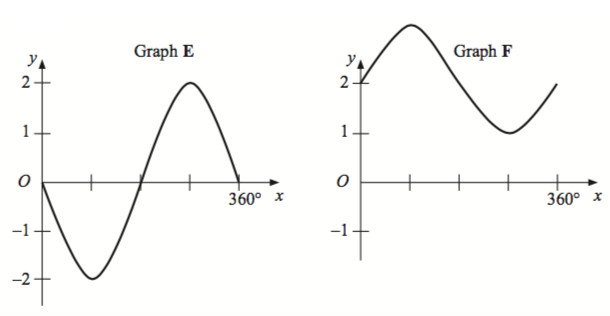
**Question 14**

Here is the graph of , where



Match the following graphs to the equations.

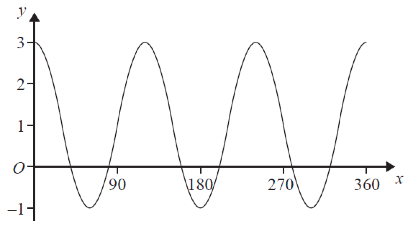




|  |  |
| --- | --- |
| Equation | Graph |
|  | .................. |
|  | .................. |
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**Question 15**

Here is a sketch of the curve *y* = *a* cos *bx*° + *c*,   
0 ≤ *x* ≤ 360



Find the values of *a*, *b* and *c*.

**..........................**